

CLAIMS

We claim:

5 1. A biochip cartridge comprising:

- a) a reaction chamber comprising:
 - i) a substrate comprising an array of electrodes, each comprising:
 - A) a self-assembled monolayer; and
 - B) a capture binding ligand;
 - II) an inlet port for the introduction of reagents; and
- b) interconnects to allow the electrical connection of said electrodes to a processor.

10 2. A biochip cartridge according to claim 1 wherein said capture binding ligands are capture probes.

15 3. A biochip cartridge according to claim 1 wherein said reaction chamber further comprises a gasket to retain fluid in contact with said array.

4. A biochip cartridge according to claim 1 further comprising a seal on said inlet port.

20 5. A biochip cartridge according to claim 1 wherein said reaction chamber further comprises an outlet port.

6. A biochip cartridge according to claim 1 wherein said reaction chamber is configured to minimize the introduction or retention of air bubbles upon introduction of a sample.

25 7. A biochip cartridge according to claim 1 wherein said array is on one surface of said substrate.

8. A biochip cartridge according to claim 1 wherein two surfaces of said substrate each comprise an array.

30 9. A biochip cartridge according to claim 1 further comprising a cap comprising at least one storage well comprising assay reagents.

35 10. A device for multiple biochip analysis comprising at least two stations configured to receive a biochip cartridge.

11. A device according to claim 10 wherein at least one station comprises a thermocontroller.

12. A device according to claim 10 wherein every station comprises a thermocontroller.

13. A device according to claim 10 wherein at least one station comprises a signalling system.

14. A device according to claim 10 wherein at least one station comprises a memory chip reader.

5 15. A device according to claim 10 wherein at least one station comprises a barcode reader.

16. A device according to claim 10 wherein at least one station comprises a memory chip writer.

10 17. A device according to claim 10 wherein at least one station comprises an encryption system.

18. A device according to claim 10 further comprising at least two biochip cartridges.

19. A device according to claim 10 further comprising a liquid handling system.

15 20. A device according to claim 10 further comprising a wireless communication component.

21. A device according to claim 10 further comprising a device board.

22. A device according to claim 10 further comprising a processor.

20 23. A device according to claim 10 further comprising a global positioning system.